OPEN SOURCE SOFTWARE
Legal & Business Issues

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DOE Missions

- Basic research: High energy physics, human genome, etc.
- Applied research to produce commercial technology: Clean Coal, FreedomCar, etc.
- Applied research to produce products for DOE use: Stockpile Stewardship, clean up, etc.

How do open source issues arise?

- Dissemination of software produced with Government Funding

- Use by the Government and its contractors of software produced by others

Types of Transactions in which Software is produced

- Direct DOE funding - prime contract laboratory operator or software developer

- Most DOE laboratories employees are contractors not Feds.; Thus their works may be copyrighted.

Transactions: Directly with DOE vs. Directly with Labs

- DOE procurement office (Chicago, Golden, Albuquerque, Oakland, Idaho, etc. or GOGO (NETL))
  - Acquisition
  - Assistance
- National Lab
  - Subcontract (NREL-Hybrid vehicles, Livermore-supercomputers)
  - CRADA
  - WFO
  - User
  - Licensee
  - Licensor

Data Rights

- **Dissemination statutes promote widespread dissemination of scientific information**
  - Technical Data including Databases
  - Application Software
- **Can dissemination be satisfied by making the benefits available without actually making data available?**

Government funded software:
history of data dissemination rules

- **1970's:** Unrestricted dissemination of scientific information, which included computer software
- **1980's:** Application Software not scientific data. Copyrighted, licensed exclusively to vendors who market and maintain
- **1990's:** Database is scientific data
- **2000's:** Open source

Software produced at Contractor run labs: Tech Transfer License

- Lab operating Contractor operated Lab can routinely assert copyright and/or patent contractor created software
- licensable like any other IP
- Escrow of Source code and documentation
- Publishable abstract

Software produced at Contractor run labs

- Government does not have right to distribute to public
- lab created copyrighted software will not be released under exemption 4 of FOIA
- Gilmore case-not a record:limited government license, software itself not a record, confidential

Software produced by non lab Contractor

- Contractor can request on a case by case basis right to assert copyright in contractor created software
- Blanket DOE permission has been granted to University grantees.
- Contractor can always patent software

SOFTWARE: Copyright

- DOE or contractors may own copyright.

- Copyright in Software produced with DOE funds by contractors may be enforced.

SOFTWARE: Trademark

- Trademark for name of software created with DOE funds can be asserted by contractors.

- DOE or contractors may own trademark.

Government funded software
Programmatic concerns addressed by Open Source Software

- Broaden public and industry acceptance of a software product
- Minimize impact of IP rights on use of software product
- minimize cost of software maintenance
- Author credit

Government funded software
Open source defined

- "User has right to run, copy, distribute and improve without having to ask permission or make payments" - Mitre

Open source defined by DOE lawyers

- Original software available to public outside of OSS distribution system

- Public Access to the OSS Website

- More like dissemination by Government through OSTI

Government funded software
Open source defined: implications

- Remove legal interpretations inhibiting dissemination of Government funded software as Open Source or use of open source available from others
- Not tech transfer: no royalties, no product liability, no U.S. preference.
- May need to assert copyright
- May need to assert Trademark

Government funded software
Open source defined: implications

- Lawyers shouldn't be making choices
- ____ should be making choice of how to distribute software
- Allow selection of appropriate OSS license by __
- Be prepared to adopt to the changing scene

Government funded software
open source defined?

- "Transitive User Rights"- any product based on the detailed design (source code) of an earlier GPL product, must provide subsequent users of the new product with the same user rights they had"; Mitre

- ensures continued propagation of user rights

Transitive user rights- another view

- **Violates long standing government policy to give ownership of new IP to developer**
- **cuts off commercialization by cutting off revenue stream**
- **inhibits incorporation of open source in subsequent products**

Open Source: security

- Commercial incentive is better security system than a many eyes system?
- demonstrated ability of open source applications to be updated rapidly in response to new types of cyberattack?

Government funded software
Minimum OSS license requirements

- Disclaim liability for other's use of OSS
- Free redistribution of OSS as part of aggregate
- Source code made available
- Derived works allowed, freely distributable subject to Trademark restrictions
- Derived works may be required to have different name than the original OSS

Government funded software
Minimum license requirements

- Costs of distribution may be charged
- Access without discrimination against persons or fields of endeavor
- OSS License not specific to product or restrict other software
- OSS license must not restrict software distributed by licensee along with OSS

Government funded software *dissemination choices*

- As scientific information, uncopyrighted, freely available for all to use, duplicate, make derivative works , and further distribute,etc.

- As copyrighted software available under a restrictive, royalty bearing license (I.e. tech transfer subject to licensing rules).

- As open source software.

Government funded software
who decides on distribution

- DOE Program manager

- Contractor who created software, e.g Laboratory management

- Author

Government funded software
who decides on distribution

- DOE program may determine appropriate method of making software publicly available.

- Lab contracts to be changed to explicitly authorize OSS

- Lab subcontract formats may require OSS for software developed by subcontractors

DOE Program Actions

- Office of Advanced Scientific Computing (SC) and Office of Advanced Simulation and Computing (NNSA) have directed that all software they fund be distributed as OSS or freely vailable software.

DOE Program Actions

- ## SC Genomes to life Notice inviting Grant applications:
  - O2-"Any Code development should be open source. Teams should be amenable to the adoption of open data standards and interoperability requirements…"
  - O3-"Software developed by research teams that is appropriate for distribution beyond the research teams shall be made available to the biological and computational community…. Applications should include plans for assuring availability … Statements such as that by the International society for Computational Biology on Bioinformatics Software Availability, http://www.iscb.org/pr.shtml may be used for reference.

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- 1.The term "open source" has taken on many different meanings. This term creates confusion in discussions of software availability; therefore the term should be carefully qualified to indicate which variation of the open-source model is intended..

- 2.Government agencies that fund bioinformatics research should NOT REQUIRE that software produced with government research funds must be distributed under open-source license (particularly given the ambiguity in the meaning of that term).   Because of the complexity inherent in software, no single distribution model is appropriate for all research projects. Government agencies should require clear statements of software availability in grant proposals.

Lab implementations: LBNL

- Threshold Considerations:
- Is it a simple code that would be quick and easy to recreate?
- Is the code for academic R&D? or serve a very narrow market?
- Does it duplicate existing commercially-available functionality?
- Does it harm the code if you lose control of code base?
- Integrity of a calculation engine may derive from National Lab's
- 'seal of approval' -- for example, EnergyPlus
- Is it OK if you do not receive credit?
- Other web sites may distribute w/o proper credit -- no real

Lab implementations: LBNL

- ☼ **Other Considerations:**
  - • **Is there an interested community of qualified developers whocould and would work on the code?**
  - • **If so, open source can be tremendously enabling**
  - • **If not, open source could alienate potential commercial partners**
  - • **Open Source release eases multi-institutional collaborations**
  - • **(e.g., GRID research and other HPC projects)**
  - • **Open Source release = publication, in the HPC community**
  - • **Preference of some DOE Programs**
  - • **.Modifications to existing open source codes may require rereleaseunder same license (e.g., GPL -- Linux)**

Lab implementations: LBNL

- **FY02:**
  - DOE Open Source IPI came late in FY02 (July 2002)
  - Berkeley Lab Open Source Distributions (uses BSD-style license):
    - **5500+ downloads in FY 2002**
    - **12 different codes available under open source licenses**
    - PIs & collaborators love it -- now we're like everyone else!
- **FY03 (so far):**
  - Berkeley Lab has now released codes per DOE Open Source IPI
  - Most releases under BSD License
  - 1 GPL release; 1 LGPL release -- both mods of existing code
  - PIs are happy to be using "standard" open source licenses
- Note 30,000 NON-open source downloads in FY02

Lab implementations: ANL Globus Toolkit

☀ **An ANL Open Source Case Study:**

- Toolkit is available as Open Source on the Web, used to enable interoperability on The Grid

- Toolkit is the primary delivery vehicle for Open Source standard architecture (OGSA), under development by the Global Grid Forum

- A large community of users – tens of thousands of downloads, hundreds of projects, 1000+ members of discussion list

- A growing community of academic and commercial contributors – tens of groups contributing ports, patches, and substantial components

- An international endeavor, with major contributors from Asia Pacific nations, members of European Union, and the U.S.

Lab implementations: ANL

⦿ *Conclusion – Making OSS Choices at ANL*

- ANL is implementing its own ANL Open Source Software license terms

- To date, no ANL OSS license prohibits proprietary derivatives

- For some codes, ANL's Office of Technology Transfer might pursue "dual licensing" – under both OSS and non-OSS license terms

- In the particular case of the Globus Toolkit, ANL project managers are careful to obtain rights under copyrights and patents, sufficient to enable distribution under the Globus Toolkit Public License.

OSS applied to Community Codes

- Software components being developed by several collaborating institutions
- Components to be combined together into a software package
- Software package to be distributed as OSS

OSS applied to Community Codes
Proposed approach: Holder

- Holder established to be sole distributor
- Holder subject to control by committee from collaborating institutions
- Committee establishes specifications for products included in software package
- Committee chooses OSS licensing scheme
- Committee establishes specifications for Acceptance of derivative works

OSS applied to Community Codes
Holder's duties

- Acceptance of components submitted by collaborating institutions as part of software package
- Acceptance of conveyance of license rights to enable holder to further distribute
- Holder maintains website and posts and distributes software package as OSS.

OSS applied to Community Codes
Proposed approach: Holder

- Holder controls Trademark for Software package
- Website contains disclaimer on behalf of holder and collaborating institutions
- Holder duties funded by _____
- Holder collects fees

Use of software produced by others

- Save cost by access to updates from others
- Can accept license that meets minimum standards
- Derivative works may be subject to OSS license: no deposit in OSTI required
- Redistribution with labs own software subject to third party's OSS license

Use of software produced by others

⚙ **Must assess program impact**

⚙ **Must assess impact on future licensing plans**

Questions

- Enforcement
  - copyright
  - trademark
- Government employee works
- restricting the user community, e.g. export control, homeland security